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     (FILE 'HOME' ENTERED AT 20:35:48 ON 18 MAR 2003)
     FILE 'CA' ENTERED AT 20:35:55 ON 18 MAR 2003
L1      637 S (FLAMMAB? OR INFLAMMAB?)(3A)(RISK? OR POTENTIAL? OR ABILITY OR
              POSSIBILITY OR CHARACTER?)
L2      136 S L1(6A)(DETECT? OR DETERMIN? OR ASSAY? OR ANALY? OR TEST? OR MEASUR?
             OR MONITOR? OR ESTIMAT? OR EVALUAT? OR EXAMIN? OR SCREEN? OR ASSES? OR
             SENSE# OR SENSING OR PROBE# OR PROBING OR QUANTIF? OR QUANTITAT?)
L3       82 S (FLAMMAB? OR INFLAMMAB?)(3A)(DIAGRAM? OR GRAPH? OR PLOT?)
L4       17 S L1 AND L3
L5       65 S L3 NOT L4
L6       41 S L3 NOT L4 NOT GRAPHITE
L7     5137 S (FLAMMAB? OR INFLAMMAB?)(3A)HAZARD OR EXPLOSION(3A)(RISK? OR
              POTENTIAL? OR ABILITY OR POSSIBILITY OR CHARACTER? OR HAZARD)
L8      777 S L7(6A)(DETECT? OR DETERMIN? OR ASSAY? OR ANALY? OR TEST? OR MEASUR?
             OR MONITOR? OR ESTIMAT? OR EVALUAT? OR EXAMIN? OR SCREEN? OR ASSES? OR
             SENSE# OR SENSING OR PROBE# OR PROBING OR QUANTIF? OR QUANTITAT?)
L9        7 S (FLAMMAB? OR INFLAMMAB? OR EXPLOSION)(3A)(DIAGRAM? OR GRAPH? OR
              PLOT?) AND L8
L10      33 S L8 AND (COMPUTER OR ALGORYTHM OR ALGORITHM)
L11       8 S L1 AND (COMPUTER OR ALGORYTHM OR ALGORITHM)
L12    1368 S (FLAMMAB? OR INFLAMMAB? OR EXPLOSION)(3A)(DANGER OR INDEX)
L13     167 S L12(6A)(DETECT? OR DETERMIN? OR ASSAY? OR ANALY? OR TEST? OR MEASUR?
             OR MONITOR? OR ESTIMAT? OR EVALUAT? OR EXAMIN? OR SCREEN? OR ASSES? OR
             SENSE# OR SENSING OR PROBE# OR PROBING OR QUANTIF? OR QUANTITAT?)
L14       7 S L13 AND(EXPERT OR COMPUTER OR ALGORYTHM OR ALGORITHM OR DIAGRAM? OR
             GRAPH? OR PLOT?)
L15     258 S L2-4,L6,L9-11,L14
L16     214 S L15 NOT(TIN OXIDE OR GRAPHITE OR COAL OR MELAMINE)OR(L15 AND(EXPERT
             OR CALIBRATION))
L17     184 S L16 NOT(RADIOACT? OR CALORIM? OR STATUS OR TEXTILE)
L18     171 S L17 NOT(CERAMIC OR RUBBER OR PILOT FLAME OR VENTILAT?)
L19     160 S L18 NOT PY>2000

=> d l19 bib,ab 1-160

L19  ANSWER 6 OF 160  CA  COPYRIGHT 2003 ACS
AN   133:336948  CA
TI   Determination of oxidizing ability of gases and gas mixtures
AU   Schroeder, Volkmar; Mackrodt, Brigitte; Dietlen, Siegmund
CS   Bundesanstalt fuer Materialforschung und -pruefung (BAM), Berlin, D-12200,
     Germany
SO   ASTM Special Technical Publication (2000), STP 1395(Flammability and
     Sensitivity of Materials in Oxygen-Enriched Atmospheres: Ninth Volume),
     456-468
AB   According to a no. of international and European regulations a gas, or
     mixt. of gases, is classified as an oxidizing substance if it is more
     oxidizing than air.  For classification it is necessary to have a method to
     det. reliable and comparable numerical data for the oxidizing ability of
     gases and a reliable calcn. method for mixts. of gases.  In ISO 10156
     "Gases and gas mixts. - Detn. of fire potential and oxidizing ability for
     the selection of cylinder valve outlets" a test method is given using
     pieces of plastic as combustible ref. material.  This method was tested in
     the past by Hoechst AG, Germany, and BAM and failed in the case of
     oxidizing gases other than air and oxygen.  Therefore BAM developed a new
     test method in cooperation with ISO subcommittee ISO/TC58/SC2.  The new
     procedure is based on the same app. and criteria applied for detn. of
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flammability in ISO 10156. The ref. combustible is the gas "Ethane". This paper describes the new test procedure and gives "coeffs. of oxygen equivalency (Ci)" for the oxidizing gases air, nitrous oxide, nitric oxide, chlorine, fluorine and nitrogen trifluoride. In the case of nitrous oxide, oxygen, air and nitrogen, a calcn. method for gas mixts. was checked.

L19 ***ANSWER 9 OF 160 CA*** COPYRIGHT 2003 ACS
AN 133:106529 CA
TI Lower and upper flash points of flammable liquids with flame-suppressing agents
AU Iwata, Yusaku; Koseki, Hiroshi; Hasegawa, Kazutoshi
CS National Research Institute of Fire and Disaster, Tokyo, 181-8633, Japan
SO Journal of Fire Sciences (1999), 17(6), 459-476
AB The lower and the upper flash points of mixts. contg. non-flammable liqs. were measured by a modified Seta-flash closed-cup tester. The shape of the concn.-temp. region of flash depended on the components of the mixt. in soln. Concn. regions for a flash were calcd. from the temp. regions of flash and compared to the **flammability diagram**. We present a theor. method for calcg. both the lower and upper flash points by liq. mixt. thermodn., and the **flammability diagram**. The exptl. values for the methanol/water mixt. agreed with calcd. values, but disagreed for halogenated hydrocarbon mixts. The difference between the calcd. and exptl. values is from a flame-suppressing effect in the gas phase, which is distinct from the thermodn. effect on soln. We discuss the magnitude of this flame-suppressing effect exhibited by halogenated hydrocarbons in the gas phase.

L19 ***ANSWER 10 OF 160*** CA COPYRIGHT 2003 ACS
AN 133:21545 CA
TI Hydrogen systems safety assessment and risk-reduction
AU Sanai, M.
CS Poulter Laboratory, SRI International, Menlo Park, CA, 94025, USA
SO Hydrogen Energy Progress XII, Proceedings of the World Hydrogen Energy Conference, 12th, Buenos Aires, June 21-26, 1998 (1998), Volume 3, 1955-1963. Editor(s): Bolcich, Juan Carlos; Veziroglu, T. Nejat. Publisher: Asociacion Argentina del Hidrogeno, Buenos Aires, Argent.
AB A **computer** simulation of the explosion of a high pressure hydrogen tank introduced a novel accident anal. **computer** program (AACA). The AACA is a fast-running personal **computer**-based program which calcs. and graphically displays hazard ranges in easily discernable color contours. Since calcn. results are displayed within a few seconds, the AACA allows safety engineers to quickly assess any postulated accident scenario and select the appropriate risk redn. measures. The general approach to detg. the consequences of a postulated hydrogen accident is based on explosion and fire safety research and involved 5 steps: identify and characterize hazards produced in the accident including explosions, fragment impact, and fire; det. the load environment experienced by objects and people in the accident area; det. the resulting structural damage and personnel response; assemble results in a family of load-damage relationships; and incorporate these relationships in a user-friendly personal **computer**-based **algorithm** to rapidly analyze various accident scenarios and evaluate possible mitigation schemes. Advances made in the AACA, including 2 new modules which address hazards due to fragments and fire, are discussed.

L19 ANSWER 13 OF 160 CA COPYRIGHT 2003 ACS
AN 132:155830 CA
TI Off-site ignition probability of flammable gases
AU Rew, P. J.; Spencer, H.; Daycock, J.
CS WS Atkins Safety and Reliability, Epsom, Surrey, KT18 5BW, UK

SO Journal of Hazardous Materials (2000), 71(1-3), 409-422
AB A key step in **assessing risks** for installations where **flammable** liqs. or gases are stored is **estg**. ignition probability. A review of current modeling and data confirmed that ignition probability values used in risk analyses tend to be based on extrapolation of limited incident data or, in many cases, on the judgement of those conducting the safety assessment. Existing models tend to assume that ignition probability is a function of release rate (or flammable gas cloud size) alone; they do not consider location, d., or ignition source type. An alternative math. framework to calc. ignition probability is outlined in which the approach used is to model the distribution of likely ignition sources and calc. ignition probability by considering whether the flammable gas cloud will reach these sources. Data were collated on the ignition properties of sources within 3 generic land-use types: industrial, urban, and rural. These data were incorporated into a working model for ignition probability in a form capable of being implemented within risk anal. models. Model sensitivity to assumptions made in deriving ignition source properties is discussed and the model is compared with other available ignition probability methods.

L19 ANSWER 14 OF 160 CA COPYRIGHT 2003 ACS
AN 132:141202 CA
TI Developments in vapour cloud explosion blast modeling
AU Mercx, W. P. M.; van den Berg, A. C.; Hayhurst, C. J.; Robertson, N. J.; Moran, K. C.
CS TNO Prins Maurits Laboratory, Rijswijk, Neth.
SO Journal of Hazardous Materials (2000), 71(1-3), 301-319
AB TNT equivalency methods are widely used to model vapor cloud explosion blast; however, other types of models are available which do not have the fundamental objections TNT equivalency models have. The TNO multi-energy method is increasingly accepted as a more reasonable alternative for use as a simple, practical method. **Computer** codes based on computational fluid dynamics (CFD), such as AutoReaGas, developed by TNO and Century Dynamics, could be also used when a more rigorous anal. is required. Applying the multi-energy method requires knowledge of 2 parameters describing an explosion: charge size and charge strength. Recently, research led to an improved detn. of charge strength (i.e., the class no. or source over-pressure) to be chosen to apply blast charts. A correlation was derived relating charge strength to a set of parameters describing the boundary conditions of the flammable cloud and fuel in the cloud. A simple approach may not be satisfactory in all situations. Over-pressure distribution inside a vapor cloud explosion is generally not homogeneous and the presence of obstructions cause directional blast propagation in the near-field. A CFD approach, in which the actual situation is modeled, supplies case-specific results. An overview of the key aspects relevant to applying the multi-energy method and CFD modeling is provided. Then application of these 2 methods is demonstrated for an example problem involving calcn. of the explosion blast load on a structure at some distance from the explosion in an offshore platform complex.

L19 ANSWER 17 OF 160 CA COPYRIGHT 2003 ACS
AN 131:48326 CA
TI Preventing hazards
AU Rogers, R. L.; Maddison, N.
CS Moorhead Court, Southampton, SO14 3GQ, UK
SO Speciality Chemicals (1999), 19(3), 114-116
AB A review with 17 refs. on the elimination of risks of fire and explosions, and chem. reaction hazards. Ignition sources and their avoidance, **flammability characteristics** of materials, implementing of safety **measures**

for fire and explosion hazards, provision against the consequences of ignition, and careful evaluation of hazards are discussed.

L19 ANSWER 18 OF 160 CA COPYRIGHT 2003 ACS
AN 130:212968 CA
TI Process plant risk analysis
AU Nair, M. P. Sukumaran
CS FEDO-FACT, Cochin, India
SO CEW, Chemical Engineering World (1998), 33(8), 87-92
AB Process hazard anal. is gaining importance in the chem. industry, particularly since expensive fires, explosions, and toxic gas releases which occurred in the industry have invited worldwide attention on pre-planning disasters and on taking remedial actions well in advance. Most governments, industries, companies, and public agencies share a fundamental desire to minimize the potential for injury to people and damage to the environment, property, or investments from industrial activity. Topics discussed include: hazard identification (what-if anal., check lists, fault trees, event trees, cause-consequence **diagrams**, hazard operability studies [HAZOP]); hazard **assessment** (Dow fire and **explosion index**; Mond fire, **explosion**, and toxicity **index**; failure mode effect **anal.**; fault tree **anal.**; event tree anal.; disaster management); hazard identification for disaster planning (vulnerability anal., estn. of vulnerable zone, risk anal.); risk assessment (probability of occurrence, severity of consequences); risk anal. matrix (quant. risk assessment, disaster potential, thermal radiation effects, pressure wave effects, toxic gas release, event probabilities); risk specification; and accuracy of results.

L19 ***ANSWER 19 OF 160*** CA COPYRIGHT 2003 ACS
AN 130:6880 CA
TI Application of the **flammability diagram** for **evaluation** of fire and **explosion hazards** of **flammable** vapors
AU Mashuga, Chad V.; Crowl, Daniel A.
CS Department of Chemical Engineering, Michigan Technological University, Houghton, MI, 49931, USA
SO Process Safety Progress (1998), 17(3), 176-183
AB The safest method to prevent fires and explosions of flammable vapors is to prevent the existence of flammable mixts. in the first place. This method requires detailed knowledge of the flammability region as a function of the fuel, oxygen, and nitrogen concns. A triangular **flammability diagram** is the most useful tool to display the flammability region, and to det. if a flammable mixt. is present during plant operations. This paper describes how to draw and use a **flammability diagram**. A procedure to est. the flammability region using the available and sometimes limited data is discussed. The paper also shows how to use the **flammability diagram** with plant operations involving inerting and purging, and from bringing vessels into and out of service. A compilation of **flammability diagrams** for 30 materials, based on previously published data, is provided. An automated app. for acquiring data for a **flammability diagram** is described. The app. consists of a 20-L sphere with an automated gas mixing system, a fuse-wire ignition system, and a high-speed pressure measurement and data acquisition system. Data derived from the app. include flammability limits, max. pressure during combustion, and the max. pressure rate. The effect of fuse-wire ignitor dynamics on the results is studied. A **flammability diagram** for methane, drawn from data obtained from the app., is presented.

L19 ***ANSWER 22 OF 160*** CA COPYRIGHT 2003 ACS
AN 128:261087 CA
TI Safe handling of flammable liquids in process vessels: a QRA approach

AU Darnell, Gary F.; Lodal, Peter N.; Singh, Jasbir
CS Tennessee Eastman Division, Eastman Chemical Company, Kingsport, TN, USA
SO International Conference and Workshop on Risk Analysis in Process Safety, Atlanta, Oct. 21-24, 1997 (1997), 651-665 Publisher: American Institute of Chemical Engineers, New York, N. Y.
AB Process vessels contg. flammable liqs. above their flash point are commonly inerted with N to reduce the risk of explosion. This is an expensive choice, particularly for older plants that must be retrofitted; the benefits must be weighed against the risk to operators and maintenance staff from N asphyxiation. Historical operating data suggested the explosion risk in well-managed facilities is very small; therefore, the need to inert is not always obvious. A cursory review of the problem without using a methodical framework and in the absence of realistic data invariably leads to the conclusion that inerting is required to achieve an acceptable risk level. Use of Quant. Risk Assessment (QRA) as the framework to identify important operating variables, flammability, and process data typically required to conduct such an anal., and to quantify the explosion risk assocd. with process vessels handling liqs. above their flash point, is discussed. A generic process is used and the application of this information to produce a useful and relevant result, is discussed in the context of current operational practices.

L19 ANSWER 23 OF 160 CA COPYRIGHT 2003 ACS
AN 128:158207 CA
TI A knowledge-based system for safety consideration in dust-treating equipment
AU Hesener, Ute
CS Dortmund, Germany
SO Fortschritt-Berichte VDI, Reihe 3: Verfahrenstechnik (1997), 508, 1-214
LA German
AB The studies presented aim at the development of a **computer**-supported system for the **assessment** of the **explosion hazard** of dusts and hybrid mixts. as well as fires and exothermal decompn. in solids-processing equipment.

L19 ANSWER 31 OF 160 CA COPYRIGHT 2003 ACS
AN 127:85162 CA
TI Investigation of the flammability limits of acetic acid at elevated temperature and pressure
AU Hoyle, M.; Astbury, G. R.
CS Zeneca Specialties, Manchester, M9 8ZS, UK
SO Institution of Chemical Engineers Symposium Series (1997), 141(Hazards XIII: Process Safety--The Future), 293-304
AB Predictive models estn. of the flammable limits of materials at elevated temps. and pressures are reliable for simple hydrocarbon solvents. Certain materials, such as acetic acid, dimerize in the vapor phase; this can have unpredictable affects on flammability limits. The flammable limits of acetic acid vapor in air at elevated temp. and various applied pressures was exptl. detd. Results were compared with those predicted by the models. Construction of **flammability diagrams** allowed prediction of the vapor compn. flammability during a chem. process, at elevated temp. and pressure, using acetic acid as a solvent medium.

L19 ANSWER 35 OF 160 CA COPYRIGHT 2003 ACS
AN 126:108072 CA
TI **Computer** simulation of explosion of a pressurized hydrogen storage tank
AU Sanai, Mohsen
CS Poulter Laboratory, SRI International, Menlo Park, CA, 94025, USA
SO Hydrogen Energy Progress XI, Proceedings of the World Hydrogen Energy

Conference, 11th, Stuttgart, June 23-28, 1996 (1996), Volume 3, 2149-2158. Editor(s): Veziroglu, T. Nejat. Publisher: International Association for Hydrogen Energy, Coral Gables, Fla.

AB SRI International, a not-for-profit research organization chartered in the United States, has been tasked to evaluate the safety of hydrogen in various operations and processes of the World Energy Network (WE-NET) system. Based on the available exptl. data and advanced **computer** simulation of explosion accidents, SRI has developed a novel **computer** program, called accident anal. **computer algorithm** (AACA), that uses the pressure-impulse (PI) methodol. to quickly calc. the response of humans and structures to postulated explosion accidents. The results are displayed graphically in the form of color contours of equal damage levels. Because the probability of occurrence is included as part of the PI isodamage curves, the AACA can also function as a probabilistic risk assessment tool. In addn., an economic anal. module can be incorporated into the program to allow safety engineers to find the most cost-effective soln. to hazards mitigation. Load-damage correlations used in this **algorithm** can be expanded to include other WE-NET accident scenarios.

L19 ANSWER 38 OF 160 CA COPYRIGHT 2003 ACS
AN 124:210429 CA
TI Ensure process vent collection system safety
AU Clark, David G.; Sylvester, Robert W.
CS Du Pont Eng., Wilmington, DE, USA
SO Chemical Engineering Progress (1996), 92(1), 65-77
AB To ensure process vent collection system (VCS) safety, proper design and operation begins with considering the system as a unit operation and giving it the same wt. as a piece of process equipment. Due to the interconnective nature of VCS, hazards initiated in them can potentially affect >1 unit operation. Administrative, design, and operational recommendations are made to adequately deal with the safety issues such systems present. Topics discussed include: VCS design recommendations; process hazards anal. (ownership and responsibility, process hazards review [PHR], hazards identification, hazards and operability anal., consequence anal., change management); understanding flammability (fire triangle, estg. flammability limits, temp. and pressure effects, mists and dusts, **flammability diagrams**, ignition sources); VCS hazards, reactions, and safety (explosion and flashback, internal and external, exothermic reactions and reactive chems.); required operating modes (lean operation; inerted operation; interlocks, alarms, and control systems; mixing of streams; using monitors to det. compn., flow-ratio control; flammable sources; arrestor use); recommendations summary; and system-component design considerations (piping, relief-valve discharge, pressure drop, isolation or block valves, low-point drains and knockout pots, arrestors and liq. seals, thermal variation considerations, O and hydrocarbon monitors).

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L19 ANSWER 42 OF 160 CA COPYRIGHT 2003 ACS
AN 123:151589 CA
TI **Evaluation** of fire and **explosion hazard** and optimization of air exchange in drying ovens
AU Andreev, V. V.; Koshmarov, B. A.; Kozlov, Yu. I.
CS Vyssh. Inzh. Pozharno - Tech. Shkola, Russia
SO Lakokrasochnye Materialy i Ikh Primenenie (1994), (5), 29-31
LA Russian
AB An **algorithm** for calcn. of optimal air exchange in drying ovens is presented.

L19 ANSWER 45 OF 160 CA COPYRIGHT 2003 ACS
AN 122:317838 CA
TI Simulating flammability under process conditions
AU O'Shaughnessey, Dan; Powers, Bruce
CS Dow Chemical Co., Midland, MI, 48667, USA
SO Process Safety Progress (1995), 14(1), 22-5
AB Establishing safe operating parameters requires the **detn.** of **flammability characteristics** under a myriad of process conditions. In order to meet these needs, a combined approach of literature search, calculational modeling, and exptl. simulation is often utilized. A few specific projects are discussed as example methods for evaluating flammability properties under challenging environments. **Flammability diagrams** and system configuration figures are presented while the interesting discoveries of each project are covered for interpretation and application to process conditions.

ABS

L19 ANSWER 46 OF 160 CA COPYRIGHT 2003 ACS
AN 122:168809 CA
TI DUST **EXPERT** - an **expert** system for **evaluation** of **explosion hazards** and for selection of explosion protection **measures** in dust processing installations
AU Haefen, E. von; Schecker, H. -G.
CS FB Chemietechnik, Universitat Dortmund, Dortmund, 4600/50, Germany
SO VDI-Berichte (1992), 975(Sichere Handhabung Brennbarer Staeube), 359-78
LA German
AB The program is run on IBM-compatible **computers** in Microsoft Windows system.

L19 ANSWER 50 OF 160 CA COPYRIGHT 2003 ACS
AN 122:13165 CA
TI RM-6EX: **Computer** method for hazard energy output appraisal and estimation of explosiveness based on both thermodynamic and kinetic viewpoint
AU Kaderabek, Vaclav
CS Department Theory and Technology Explosives, University Chemical Technology, Pardubice, CZ - 532 10, Czech Rep.
SO Proceedings of the International Pyrotechnics Seminar (1994), 20TH, 515-32
AB A **computer** program, for prediction of the hazard potential of unstable and energetic compds., is based on the max. heat of decompn., ΔHdec, the heat of combustion, ΔHcomb, oxygen balance, OB (from a thermodn. viewpoint), and crit. temp., Tm (from a kinetic viewpoint). A new approach to ΔHdec prediction was involved. A fully independent DataBank system, including a user's defined base, was incorporated into the program, making possible all common types of information sorting. The program also provides calcn. of the heat of reaction, ΔHr, entropy of reaction, Sr, and Gibbs energy of reaction, ΔGr of the mixts. Finally, the program is furnished with useful tools to est. the heat of formation, ΔHf (Benson and Allen methods), the heat of combustion, ΔHcomb (Laidler method), the heat capacity, Cp, and their dependence on temp. The kinetic part is focused on calcn. of Tm by the Frank-Kamenetski equation. A block scheme of the RM-6EX program was presented.

L19 ***ANSWER 52 OF 160*** CA COPYRIGHT 2003 ACS
AN 121:112501 CA
TI Interactive **computer** program to predict process hazards
AU Satyanarayana, K.; Kakati, M. C.
CS Chem. Eng. Dep., Reg. Res. Lab., Jorhat, 785 006, India
SO Indian Chemical Engineer (1959-1993) (1993), 35(4), 221-4
AB A **computer** program in dbase (Plus) and Fortran 77 was developed to **est.** the fire and **explosion index** of any chem. using the Dow's index procedure. The spline technique is adopted to est. the penalty factor under process

hazards. Various phys. properties of 900 hazardous chems. were used in risk and hazardous anal. to identify inherent process hazard.

L19 ANSWER 54 OF 160 CA COPYRIGHT 2003 ACS
AN 120:222148 CA
TI MINEX - a prototype **expert** system for mine safety
AU Soundararajan, Ranganathan; Riordan, Denis; Dawd, Nasif
CS Dep. Chem. Eng., Tech. Univ. Nova Scotia, Halifax, NS, B3J 2X4, Can.
SO Proceedings of the Summer Computer Simulation Conference (1992), 24th, 418-22
AB A prototype object-oriented system was developed for **assessment** of underground **explosion potential** in the mining industry, which integrates a detailed model of the explosion triangle with a knowledge of federal and provincial safety regulations and mine-specific knowledge acquired from mine safety engineers. Results of expts. on dust explosion testing of several Nova Scotia coals were included in the model. The system was developed using PROGRAPH, which is an object-oriented visual programming tool. Currently, the prototype concs. on coal since information is readily available, but the structure general enough to be adapted to other mine types. Prograph is a very high-level pictorial object-oriented programming environment used to represent the MINEX knowledge base (e.g., a diagnostic **expert** system) as a collection of frames or objects.

ABS

L19 *__ANSWER 59 OF 160__* CA COPYRIGHT 2003 ACS
AN 119:187558 CA
TI **Expert** system for prediction of safety in manufacture of a mixture of gases
AU Yoshikawa, Hiroshi; Ueno, Hiroshi
CS Nippon Sanso K. K., Kawasaki, 210, Japan
SO Koatsu Gasu (1993), 30(4), 273-85
AB Phys. and chem. properties of many gases were stored in a **computer** as a database for the **expert** system. The system first checks the concn. of each gas to be mixed. If it is beyond the safety limit, the manuf. of the mixt. is rejected. The reactivity of each gas is checked and if any of the gases react with each other, the gas mixt. can be manufd. and a message is displayed. The explosion limit of the mixt. is examd. The system also provides the order of addn. of gases to a container, method of anal., and pressure of the mixed gases.

ABS

L19 ***ANSWER 86 OF 160*** CA COPYRIGHT 2003 ACS
AN 108:81199 CA
TI Hazard risk analysis associated with production and storage of industrial gases
AU Hempseed, J. W.
CS Air Products Ltd., Surrey, KT12 4RZ, UK
SO Bericht ueber das Internationale Kolloquium ueber die Verhuetung von Arbeitsunfaellen und Berufskrankheiten in der Chemischen Industrie (1987), 11th, 141-73
AB Hazard risk and consequence anal. used in the design of chem. plants includes: a preliminary hazard review, design hazard review, design verification review, and a safe-to-operate inspection. Hazards are identified using techniques such as "what if" and major consequences are **quantified** in terms of gas dispersion and **explosion** effects. A detailed **hazard** and operability study is performed and all significant hazards are quantified using fault trees or event trees. In-house **computer** programs allow these calcns. to be completed quickly and efficiently.

ABS

L19 ANSWER 87 OF 160 CA COPYRIGHT 2003 ACS
AN 108:26504 CA

TI Automatic **calibration** and control system for combined oxygen and combustibles analyses
IN Woolbert, Gordon Davies; Jewett, Scotty Young; Robertson, John Walter, Jr.
PA Babcock and Wilcox Co., USA
SO Eur. Pat. Appl., 10 pp.

PI	EP 242946	A2	19871028	EP 1987-301222	19870212
	US 4852384	A	19890801	US 1986-854256	19860421
PRAI	US 1986-854256		19860421		

AB The title system, esp. for **monitoring** and signalling **potentially flammable** or explosive conditions, e.g., in coal pulverizers, comprises an analyzer for sensing a level of O and a level of combustibles in a volatile atm. and producing a 1st signal indicating the O level and a 2nd signal indicating the combustible level, a **calibration** test gas feed, and means for concurrently calibrating the signals indicating the O and combustible levels from the analyzer. The **calibration** means may comprise a memory unit for storing signals indicating the O and combustible levels and a timer for setting discrete time intervals and providing control signals at the set time intervals to activate the **calibration** test gas feed. An automatic control system for monitoring a hostile environment comprises means for connecting the system to the environment, means for presetting limit values, means for analyzing the levels of combustibles and O in the environment and providing indicative signals, means for periodically calibrating the signals, and means for alerting an operator when the calibrated signals are above the limit values.

L19 **ANSWER 91 OF 160** CA COPYRIGHT 2003 ACS
AN 106:201065 CA
TI Economical and efficient use of nitrogen in chemical and petrochemical processes
AU Guedes Filho, Eduardo; Silva, Maria Regina
CS Brazil
SO Mineracao Metalurgia (1986), 50(480), 56-8
LA Portuguese
AB **Computer** programs were developed to **det**. the **explosion risk** of **flammable** vapors and gases and **det**. the amt. of N(g) to be added to protective atms. in industrial processes to prevent explosions. The methodol. can reduce the vol. of N used and in some cases reduce the operating time required.

L19 ANSWER 95 OF 160 CA COPYRIGHT 2003 ACS
AN 101:194622 CA
TI Flammability of gaseous mixtures of ethylene oxide, nitrogen, and air
AU Plett, Edelbert G.
CS Carleton Univ., Ottawa, ON, Can.
SO Plant/Operations Progress (1984), 3(3), 190-3
AB **Flammability diagrams** are given for ethylene oxide [75-21-8] mixts. with N_2 and air at total pressures of 6.9, 101.3, and 308 kPa. The degree of mixing was of crit. importance to obtaining consistent results. The overall pressure had some effect on the flammability limits.

L19 ANSWER 98 OF 160 CA COPYRIGHT 2003 ACS
AN 100:54038 CA
TI Flammability of the ethylene oxide-Freon 12-air system
AU Fiumara, Annunziata; Mazzei, Nicola
CS Staz. Sper. Combust., San Donato Milanese, Italy
SO Chimica e l'Industria (Milan, Italy) (1983), 65(11), 683-7
LA Italian
AB Mixts. of ethylene oxide [75-21-8] with Freon 12 [75-71-8] are widely used com., esp. in hospitals for sterilization of surgical instruments.

These mixts. can be explosive. The **flammability diagram** for the ethylene oxide-Freon 12-air system at atm. pressure and 60° was detd.

L19 ANSWER 105 OF 160 CA COPYRIGHT 2003 ACS
AN 96:180872 CA
TI An experimental study on the conditions of safe oxidation of toluene with oxygen-carbon dioxide mixtures
AU Crescitelli, Silvestro; De Stefano, Giuseppe; Pistone, Luigi; Russo, Gennaro; Tufano, Vincenzo
CS Ist. Chim. Ind. Impianti Chim., Univ. Naples, Naples, 80125, Italy
SO Journal of Hazardous Materials (1982), 5(3), 189-96
AB The flammability limits of satd. vapors of PhMe in O2-CO2 mixts. were measured at ≤180°/10 atm using a direct rapid exptl. technique. The **flammability** data are **plotted** as pressure vs. temp. for the convenience in the detn. of safe operating conditions for liq.-phase oxidns. (steady and/or transient state) of hydrocarbons.

L19 ANSWER 115 OF 160 CA COPYRIGHT 2003 ACS
AN 93:116713 CA
TI Flammability of ethylene oxide in sterilizer operations
AU Bajpai, S. N.
CS Fact. Mutual Res. Corp., Norwood, MA, USA
SO Loss Prevention (1980), Volume Date 1979, 13, 119-22
AB The flammability of ethylene oxide (I) [75-21-8] in 3 sterilizing operations was studied at 50-66° in CO2, N2, and/or steam. The mixts. had different flammabilities during different inerting stages and for different final compns. A **flammability diagram** is given for a ternary system of I, air, and diluent (CO2 or N2 with water). Pure I does not propagate a decompn. flame at <356 mm Hg abs. Addn. of inerting agent prior to addn. of I is recommended to assure against explosion hazards in sterilizing operations.

L19 ANSWER 119 OF 160 CA COPYRIGHT 2003 ACS
AN 90:106596 CA
TI Inertness: use of carbon dioxide
AU Anon.
CS Fr.
SO Informations Chimie (1978), 183, 177-80
LA French
AB Flammability limits, ignition temp., etc., are discussed and **diagrams** given for **flammability** limits of CH4 [74-82-8]-O2-N2 mixts., of C2H6 [74-84-0], C2H4 [74-85-1], C6H6 [71-43-2] mixts. with air and CO2, of trichloroethylene [79-01-6]-O2-N2 mixts., and CH4-air mixts. with CO2, H2O, N2, He, or Ar. An app. for the automatic prepn. and delivery of mixts. made inert by CO2 is described.

=> log y
STN INTERNATIONAL LOGOFF AT 21:25:50 ON 18 MAR 2003